

Docket No. 032085-2
Serial No. 19/705,226
Page 2

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)
2. (Currently amended) The medical device anchor of claim [[1]] 6 wherein said expandable anchor includes a pointed lead end.
3. (Canceled)
4. (Canceled)
5. (Canceled)
6. (Currently amended) [[The]] A medical device anchor of claim 5 wherein for penetration through a body wall from a first side to a second side thereof and expansion against said second side comprising:
an anchor shaft having a proximal end, a distal end and a longitudinal axis,
an expandable anchor at the distal end of said anchor shaft having anchor sections formed integrally with said anchor shaft by splitting said anchor shaft longitudinally at the distal end thereof to form first and second anchor sections, said expandable anchor having a first collapsed configuration wherein said anchor is substantially coextensive with said anchor shaft and a second expanded configuration wherein said first and second anchor sections extend outwardly from said anchor shaft in opposite directions transverse to the longitudinal axis of said anchor shaft, said first and second anchor sections curve arcuately outward from said anchor shaft and back toward said anchor shaft in the second expanded configuration of said expandable anchor.

W657040.1

Best Available Copy

Docket No. 032085-2
Serial No. 00705,226
Page 3

7. (Currently amended) The medical device anchor of claim ~~[[3]]~~ 6 wherein said expandable anchor is formed of shape memory material which is compliable and compressible in a first state and which is self-expandable in a second state to a substantially rigid, predetermined spiral configuration.

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Currently amended) The medical device anchor and delivery system of claim ~~[[13]]~~ 16 wherein said anchor shaft has a longitudinal axis and wherein said first and second anchor sections expand outwardly from said anchor shaft in opposite directions and transverse to the longitudinal axis of said anchor shaft in the second expanded configuration of said expandable anchor.

15. (Canceled)

16. (Currently amended) ~~[[The]]~~ A medical device anchor and delivery system ~~[of claim 14 wherein] for propelling an anchor through a body wall from a first side to a second side where said anchor expands against said second side comprising:~~

an anchor shaft having a proximal end, a distal end and a longitudinal axis,

an expandable anchor at the distal end of said anchor shaft having anchor sections formed integrally with said anchor shaft by splitting said anchor shaft longitudinally at the

W657040.1

Docket No. 032085-2

Serial No. 10/705,226

Page 4

distal end thereof to form first and second anchor sections, said expandable anchor having a first collapsed configuration where said anchor is substantially coextensive with said anchor shaft and a second expanded configuration wherein said first and second anchor sections extend outwardly from said anchor shaft in at least two opposed directions transverse to the longitudinal axis of said anchor shaft, said first and second anchor sections curve arcuately outward from said anchor shaft and back toward said anchor shaft in the second expanded configuration of said expandable anchor,

a shaft support hub connected to the proximal end of said anchor shaft

an elongate tube having an entry and an exit end, said tube containing said anchor shaft with said expandable anchor in said collapsed configuration adjacent to said entry end, and

a drive shaft having a first end in engagement with said shaft support hub and operative when propelled to cause said shaft support hub to move said anchor shaft longitudinally of said elongate tube to propel said expandable anchor outwardly from the exit end of said tube, said drive shaft including a second end opposite to said first end, the second end being connection to a propulsion unit operative to propel said drive shaft.

17. (Currently amended) The medical device anchor and delivery system of claim 16 wherein said expandable anchor is formed of thermal shape memory material having a temperature transformation level where at temperatures below said temperature transformation level said shape memory material is relatively pliable and compressible and at temperatures at least at or above said temperature transformation level said shape memory material is self-expandable to a substantially rigid predetermined configuration.

18. (Canceled)

19. (Currently amended) ~~[[The]]~~ A blood clot filter with an anchor delivery system of claim 18 wherein for propelling one or more anchors through the wall of a blood vessel from a first inner side to a second outer side, the blood clot filter having a central longitudinal axis and being collapsible to a collapsed configuration toward said longitudinal axis and expandable to an expanded configuration outwardly from said longitudinal axis for contact with the inner

W637040.1

Docket No. 032085-2
Serial No. 00/705,226
Page 5

side of the wall of said blood vessel, said blood clot filter comprising:

a plurality of elongate, spaced legs each having a distal end and a proximal end, the proximal ends of said elongate legs being secured together adjacent to the longitudinal axis of said blood clot filter, said plurality of elongate spaced legs being formed to extend outwardly away from said longitudinal axis to bring the distal ends thereof into contact with the first inner side of a blood vessel in the expanded configuration of said blood clot filter, one or more of said elongate spaced legs being tubular in configuration with an open distal and an open proximal end,

an elongate anchor shaft mounted for longitudinal movement in each of said tubular elongate legs, each elongate anchor shaft having first and second opposed ends,

an expandable anchor at the second end of each of said anchor shafts, said expandable anchor having one or more anchor sections with a first collapsed configuration wherein said anchor is substantially coextensive with said anchor shaft and a second expanded configuration wherein said one or more anchor sections extend outwardly from said anchor shaft in at least two opposed directions,

said tubular elongate legs each containing said expandable anchor in the first collapsed condition adjacent to the open distal end thereof, [[and]]

a shaft support hub connected to the first end of each elongate anchor shaft, said shaft support hub being spaced from the proximal ends of said elongate legs when an expandable anchor in the first collapsed condition is contained in said tubular elongate legs, said shaft support being moveable toward the proximal ends of said elongate legs to move said anchor shafts longitudinally to propel said expandable anchors out from the open distal ends of said tubular elongate legs and through the wall of a blood vessel, and

each said expandable anchor includes first and second anchor sections which expand outwardly from said anchor shaft in opposite directions when said expandable anchor is propelled out from the open distal end of a tubular elongate leg and through the wall of a blood vessel, said expandable anchor being oriented such that the first and second anchor sections expand in directions transverse to the longitudinal axis of said blood clot filter.

20. (Currently amended) The blood clot filter with anchor delivery system of claim [[18]] 19 which includes a drive shaft having a first drive shaft end connected to said shaft support hub

W657040.1

Docket No. 032085-2
Serial No. 11/705,226
Page 6

to move said shaft support hub relative to the proximal ends of said elongate legs.

21. (Original) The blood clot filter with anchor delivery system of claim 20 wherein said drive shaft is mounted for movement within an elongate filter centering shaft having an inner end spaced adjacent to said shaft support hub, said filter centering shaft having a plurality of elongate, spaced, centering arms secured at one end to said centering shaft inner end, said centering arms being adapted to expand outwardly into engagement with said blood vessel wall inner side.

22. (Original) The blood clot filter with anchor delivery system of claim 21 wherein said drive shaft includes a second drive shaft end opposite to said first drive shaft end, said second drive shaft end being connected to a propulsion device to cause said drive shaft to propel said shaft support hub toward the proximal ends of said elongate legs.

23. (Currently amended). [[The]] A blood clot filter with an anchor delivery system of claim 18 wherein for propelling one or more anchors through the wall of a blood vessel from a first inner side to a second outer side, the blood clot filter having a central longitudinal axis and being collapsible to a collapsed configuration toward said longitudinal axis and expandable to an expanded configuration outwardly from said longitudinal axis for contact with the inner side of the wall of said blood vessel, said blood clot filter comprising:

a plurality of elongate, spaced legs each having a distal end and a proximal end, the proximal ends of said elongate legs being secured together adjacent to the longitudinal axis of said blood clot filter, said plurality of elongate spaced legs being formed to extend outwardly away from said longitudinal axis to bring the distal ends thereof into contact with the first inner side of a blood vessel in the expanded configuration of said blood clot filter, one or more of said elongate spaced legs being tubular in configuration with an open distal and an open proximal end,

an elongate anchor shaft mounted for longitudinal movement in each of said tubular elongate legs, each elongate anchor shaft having first and second opposed ends, an expandable anchor at the second end of each of said anchor shafts, said expandable anchor having one or more anchor sections with a first collapsed configuration wherein said anchor

W657040.1

Docket No. 032085-2

Serial No. 19/705,226

Page 7

is substantially coextensive with said anchor shaft and a second expanded configuration wherein said one or more anchor sections extend outwardly from said anchor shaft in at least two opposed directions, said expandable anchor is configured to extend outwardly from said anchor shaft in a spiral configuration in the second expanded configuration of said anchor, said tubular elongate legs each containing said expandable anchor in the first collapsed condition adjacent to the open distal end thereof, and a shaft support hub connected to the first end of each elongate anchor shaft, said shaft support hub being spaced from the proximal ends of said elongate legs when an expandable anchor in the first collapsed condition is contained in said tubular elongate legs, said shaft support being moveable toward the proximal ends of said elongate legs to move said anchor shafts longitudinally to propel said expandable anchors out from the open distal ends of said tubular elongate legs and through the wall of a blood vessel.

24. (Currently amended). [[The]] A blood clot filter with an anchor delivery system of claim 18 wherein for propelling one or more anchors through the wall of a blood vessel from a first inner side to a second outer side, the blood clot filter having a central longitudinal axis and being collapsible to a collapsed configuration toward said longitudinal axis and expandable to an expanded configuration outwardly from said longitudinal axis for contact with the inner side of the wall of said blood vessel, said blood clot filter comprising:

a plurality of elongate, spaced legs each having a distal end and a proximal end, the proximal ends of said elongate legs being secured together adjacent to the longitudinal axis of said blood clot filter, said plurality of elongate spaced legs being formed to extend outwardly away from said longitudinal axis to bring the distal ends thereof into contact with the first inner side of a blood vessel in the expanded configuration of said blood clot filter, one or more of said elongate spaced legs being tubular in configuration with an open distal and an open proximal end.

an elongate anchor shaft mounted for longitudinal movement in each of said tubular elongate legs, each elongate anchor shaft having first and second opposed ends, an expandable anchor at the second end of each of said anchor shafts, said expandable anchor having one or more anchor sections with a first collapsed configuration wherein said anchor is substantially coextensive with said anchor shaft and a second expanded configuration

W657040.1

Docket No. 032085-2

Serial No. 0705,226

Page 8

wherein said one or more anchor sections extend outwardly from said anchor shaft in at least two opposed directions, the expandable anchor at the second end of each anchor shaft is formed integrally with the anchor shaft by splitting the anchor shaft longitudinally at the second end thereof to form first and second anchor sections[[.]].

said tubular elongate legs each containing said expandable anchor in the first collapsed condition adjacent to the open distal end thereof, and

a shaft support hub connected to the first end of each elongate anchor shaft, said shaft support hub being spaced from the proximal ends of said elongate legs when an expandable anchor in the first collapsed condition is contained in said tubular elongate legs, said shaft support being moveable toward the proximal ends of said elongate legs to move said anchor shafts longitudinally to propel said expandable anchors out from the open distal end of said tubular elongate legs and through the wall of a blood vessel.

25. (Original) The blood clot filter with anchor delivery system of claim 24 wherein said anchor shaft has a longitudinal axis, and wherein said first and second anchor sections expand outwardly from said anchor shaft in opposite directions and transverse to the longitudinal axis of said anchor shaft in the second expanded configuration of said expandable anchor.

26. (Original) The blood clot filter with anchor delivery system of claim 25 wherein each said expandable anchor is oriented such that said first and second anchor sections expand in directions transverse to the longitudinal axis of said blood clot filter.

27. (Original) The blood clot filter with anchor delivery system of claim 25 wherein said first and second anchor sections when expanded curve arcuately outward from said anchor shaft and back toward the anchor shaft.

28. (Currently amended) The blood clot filter with anchor delivery system of claim 19 wherein said expandable anchor, anchor shaft and plurality of elongate spaced legs are formed of thermal shape memory material.

29. (Canceled)

W657040.1

Docket No. 032085-2
Serial No. 19/705,226
Page 9

30. (Canceled)

31. (New) A blood clot filter with an anchor delivery system for propelling one or more anchors through the wall of a blood vessel from a first inner side to a second outer side, the blood clot filter having a central longitudinal axis and being collapsible to a collapsed configuration toward said longitudinal axis and expandable in an expanded configuration outwardly from said longitudinal axis for contact with the inner side of the wall of said blood vessel, said blood clot filter with anchor delivery system comprising:

a plurality of elongate legs each having a proximal end and a distal end section terminating at a distal end, the proximal ends of said elongate legs being secured together adjacent to the longitudinal axis of said blood clot filter, said elongate legs being formed to extend outwardly away from said longitudinal axis to bring at least a portion of the distal end sections thereof into contact with a first inner side of the wall of a blood vessel in the expanded configuration of said blood clot filter,

one or more of said elongate legs having an open proximal end, an exit opening formed in said leg in the distal end section thereof, and an internal passageway extending between said open proximal end and said exit opening,

one or more anchor shafts having first and second opposed ends,

an expandable anchor at the second end of each said anchor shaft having one or more anchor sections, said expandable anchor having a first configuration wherein said anchor is substantially coextensive with said anchor shaft and a second expanded configuration wherein said one or more anchor sections extend outwardly from said anchor shaft,

an anchor shaft being mounted for longitudinal movement in the internal passageway of said one or more elongate legs with the expandable anchor in the collapsed configuration adjacent to said exit opening, the first end of each said anchor shaft extending outwardly from the proximal ends of said elongate legs when the expandable anchor is in the collapsed configuration adjacent to the exit opening, and

a drive unit including a locking unit in engagement with said proximal ends of said elongate legs to lock said elongate legs against longitudinal movement relative to said one or more anchor shafts, and a drive shaft mounted for longitudinal movement toward the proximal ends of said elongate legs to engage the first end of said one or more anchor shafts

W637040.1

Docket No. 032085-2
Serial No. 11/705,226
Page 10

to move each anchor shaft longitudinally toward the distal end of said one or more elongate legs to propel each expandable anchor out through an exit opening and through the blood vessel wall.

32. (New) The blood clot filter and anchor delivery system of claim 31 wherein said one or more elongate legs are connected to a retention sleeve at the proximal ends thereof, said locking unit engaging said retention sleeve to lock said one or more elongate legs against longitudinal movement relative to said one or more anchor shafts.

33. (New) The blood clot filter and anchor delivery system of claim 32 wherein said locking unit includes a releasable lock for engaging said retention sleeve.

34. (New) The blood clot filter and delivery system of claim 32 wherein the first ends of said one or more anchor shafts extend outwardly from the open proximal end of said one or more elongate legs to a shaft support hub spaced from said retention sleeve when the expandable anchor connected to each anchor shaft is in said collapsed configuration in said internal passageway.

35. (New) The blood clot filter and anchor delivery system of claim 34 wherein said drive shaft has a first drive shaft end in engagement with said shaft support hub, said drive shaft being mounted for longitudinal movement to cause said shaft support hub to move toward said retention sleeve to cause said one or more anchor shafts to move toward the distal ends of said one or more elongate legs to propel each said expandable anchor out through an exit opening and through the wall of a blood vessel.

36. (New) The blood clot filter and anchor delivery system of claim 35 wherein said drive shaft includes a second drive shaft end spaced from said first drive shaft end, said second drive shaft end being connected to a propulsion unit operative to propel said drive shaft longitudinally to drive said shaft support hub toward said retention sleeve.

W657040.1

Docket No. 032085-2

Serial No. 10/705,226

Page 11

37. (New) The blood clot filter and anchor delivery system of claim 35 wherein said locking unit includes an elongate filter centering shaft having a releasable lock at an inner end thereof for engagement with said retention sleeve, said releasable lock for said elongate filter centering shaft engaging said retention sleeve to permit said filter centering shaft to move said blood clot filter into a blood vessel and to prevent longitudinal movement of said one or more elongate legs during longitudinal movement of said one or more anchor shafts toward the distal ends of said elongate legs, said drive shaft being mounted for longitudinal movement within said filter centering shaft.

38. (New) The blood clot filter and anchor delivery system of claim 31 wherein said one or more anchor sections curve arcuately outward from each said anchor shaft and back toward said anchor shaft in the second expanded configuration of said expandable anchor.

39. (New) The blood clot filter and anchor delivery system of claim 31 wherein said locking unit includes an elongate filter centering shaft having a releasable lock at an inner end thereof to engage said elongate legs to permit said filter centering shaft to move said blood clot filter into a blood vessel and to prevent longitudinal movement of said one or more elongate legs during longitudinal movement of said one or more anchor shafts toward the distal ends of said elongate legs, said drive shaft being mounted for longitudinal movement within said filter centering shaft.

40. (New) A method for positioning and anchoring a blood clot filter having a plurality of elongate spaced legs adapted to expand outwardly from a filter longitudinal axis to bring at least a portion of a free end section of each of said legs into contact with the inner surface of a blood vessel wall having an inner and outer surface, the free end section of each of said legs terminating at a free end for said leg, the method including:

enclosing an elongate anchor shaft and an expandable anchor in a non expanded state for longitudinal movement within one or more of said elongate spaced legs, each said expandable anchor being connected to a distal end section of an anchor shaft and positioned in the non expanded state in the free end section of an elongate leg, causing the elongated spaced legs to collapse toward the longitudinal axis of said blood clot filter,

W657040.1

Docket No. 032085-2

Serial No. 10/705,226

Page 12

transporting said blood clot filter with the elongate spaced legs collapsed and with one or more of said elongate legs enclosing an expandable anchor in the non expanded state through a blood vessel to a desired position,

at the desired position, causing said elongate spaced legs to expand to bring at least a portion of the free end sections thereof into contact with the inner surface of the blood vessel wall,

subsequent to contact of said free end sections with the inner surface of the blood vessel wall, propelling each said expandable anchor in the non expanded state and the distal end section of the anchor shaft to which the anchor is connected out of the free end section of an elongate leg through an exit opening formed in the free end section and through the inner and outer surfaces of the blood vessel wall, and

causing each said anchor to expand laterally from the distal end section of the anchor shaft to which the anchor is connected against the outer side of the blood vessel wall.

41. (New) The method of claim 40 which includes restraining said elongate spaced legs against movement in the direction of the free ends thereof while propelling said expandable anchors out of the free end section thereof.

42. (New) The method of claim 41 which includes causing said expandable anchor to expand in two opposite directions which are transverse to the longitudinal axis of said blood clot filter and engage against the outer surface of the blood vessel wall.

43. (New) The method of claim 40 which includes causing each said anchor to expand laterally from the distal end section of an anchor shaft and to engage the outer surface of the blood vessel wall in at least two spaced locations without puncturing the outer surface of the blood vessel wall.

44. (New) The method of claim 43 which includes causing each said expandable anchor to expand laterally outward from the distal end section of an anchor shaft in an arcuate configuration and to curve back toward said anchor shaft to engage against the outer side of the blood vessel wall at two or more spaced locations.

W657040.1

Docket No. 032085-2
Serial No. 00/705,226
Page 13

45. (New) The method of claim 41 which includes causing each said anchor to expand laterally from the distal end section of the anchor shaft to which the anchor is connected and to engage the outer surface of the blood vessel wall in at least two spaced locations.

46. (New) The method of claim 45 which includes causing each expandable anchor to expand laterally from the distal end section of the anchor shaft to which the anchor is connected in an arcuate configuration and to curve back toward said anchor shaft to engage against the outer side of the blood vessel wall at two or more spaced locations.

47. (New) A blood clot filter with an anchor delivery system for propelling one or more anchors through the wall of a blood vessel from a first inner side to a second outer side, the blood clot filter having a central longitudinal axis and being collapsible to a collapsed configuration toward said longitudinal axis and expandable in an expanded configuration outwardly from said longitudinal axis for contact with the inner side of the wall of said blood vessel, said blood clot filter with anchor delivery system comprising:

a plurality of elongate legs each having a proximal end and a distal end section terminating at a distal end, the proximal ends of said elongate legs being secured together adjacent to the longitudinal axis of said blood clot filter, said elongate legs being formed to extend outwardly away from said longitudinal axis to bring at least a portion of the distal end sections thereof into contact with a first inner side of the wall of a blood vessel in the expanded configuration of said blood clot filter,

one or more of said elongate legs having an open proximal end, an exit opening formed in said leg in the distal end section thereof, and an internal passageway extending between said open proximal end and said exit opening,

one or more anchor shafts having first and second opposed ends with a second end section terminating at said second end,

an expandable anchor at the second end of each said anchor shaft having one or more anchor sections, said expandable anchor having a first collapsed configuration wherein said anchor is substantially coextensive with said anchor shaft and a second expanded configuration wherein said one or more anchor sections extend outwardly from said anchor

W657040.1

Docket No. 032085-2
Serial No. 10/705,226
Page 14

shaft,

an anchor shaft being mounted for longitudinal movement in the internal passageway of said one or more elongate legs with the expandable anchor in the collapsed configuration adjacent to said exit opening, the first end of each said anchor shaft extending outwardly from the proximal ends of said elongate legs when the expandable anchor is in the collapsed configuration adjacent to the exit opening, and

a drive unit including a drive shaft mounted for longitudinal movement toward the proximal ends of said elongate legs to engage the first end of said one or more anchor shafts to move each anchor shaft longitudinally toward the distal end of said one or more elongate legs to propel each expandable anchor out through an exit opening and through the blood vessel wall, the first end of each anchor shaft extending outwardly from the proximal end of an elongate leg when the anchor at the second end thereof is in the collapsed configuration within an elongate leg for a distance sufficient to cause said expandable anchor and the second end section of said anchor shaft to be propelled out through an exit opening and through the wall of a blood vessel from the first inner side to the second outer side.

48. (New) The blood clot filter and anchor delivery system of claim 47 wherein said drive unit includes a locking unit in engagement with the proximal ends of said elongate legs to lock said elongate legs against longitudinal movement relative to said one or more anchor shafts during longitudinal movement of said anchor shafts.

49. (New) The blood clot filter and anchor delivery system of claim 47 wherein each said anchor is formed to curve outwardly from the second end of said anchor shaft and back toward the second end section of said anchor shaft in the second expanded configuration of said anchor.

50. (New) The blood clot filter and anchor delivery system of claim 47 wherein each said anchor is formed to engage the second outer side of a blood vessel wall in at least two spaced locations in the second expanded configuration of said anchor.

W657040.1

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☒ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER: _____**

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.